General

Guideline Title

Surgical site infection: prevention and treatment of surgical site infection.

Bibliographic Source(s)

National Collaborating Centre for Women's and Children's Health. Surgical site infection: prevention and treatment of surgical site infection. London (UK): National Institute for Health and Clinical Excellence (NICE); 2008 Oct. 142 p. (Clinical guideline; no. 74). [256 references]

Guideline Status

This is the current release of the guideline.

The National Collaborating Centre for Women's and Children's Health reaffirmed the currency of this guideline in 2011.

Recommendations

Major Recommendations

Information for Patients and Carers

Offer patients and carers clear, consistent information and advice throughout all stages of their care. This should include the risks of surgical site infections, what is being done to reduce them and how they are managed.

Offer patients and carers information and advice on how to care for their wound after discharge.

Offer patients and carers information and advice about how to recognise a surgical site infection and who to contact if they are concerned. Use an integrated care pathway for healthcare-associated infections to help communicate this information to both patients and all those involved in their care after discharge.

Always inform patients after their operation if they have been given antibiotics.

Preoperative Phase

Preoperative Showering

Advise patients to shower or have a bath (or help patients to shower, bath or bed bath) using soap, either the day before, or on the day of, surgery.

Hair Removal

Do not use hair removal routinely to reduce the risk of surgical site infection.

If hair has to be removed, use electric clippers with a single-use head on the day of surgery. Do not use razors for hair removal, because they increase the risk of surgical site infection.

Patient Theatre Wear

Give patients specific theatre wear that is appropriate for the procedure and clinical setting and that provides easy access to the operative site and areas for placing devices, such as intravenous cannulas. Consider also the patient's comfort and dignity.

Staff Theatre Wear

All staff should wear specific non-sterile theatre wear in all areas where operations are undertaken.

Staff Leaving the Operating Area

Staff wearing non-sterile theatre wear should keep their movements in and out of the operating area to a minimum.

Nasal Decontamination

Do not use nasal decontamination with topical antimicrobial agents aimed at eliminating *Staphylococcus aureus* routinely to reduce the risk of surgical site infection.

Mechanical Bowel Preparation

Do not use mechanical bowel preparation routinely to reduce the risk of surgical site infection.

Hand Jewelry, Artificial Nails, and Nail Polish

The operating team should remove hand jewelry before operations.

The operating team should remove artificial nails and nail polish before operations.

Antibiotic Prophylaxis

Give antibiotic prophylaxis to patients before:

- Clean surgery involving the placement of a prosthesis or implant
- Clean-contaminated surgery
- Contaminated surgery

Do not use antibiotic prophylaxis routinely for clean non-prosthetic uncomplicated surgery.

Use the local antibiotic formulary and always consider potential adverse effects when choosing specific antibiotics for prophylaxis.

Consider giving a single dose of antibiotic prophylaxis intravenously on starting anaesthesia. However, give prophylaxis earlier for operations in which a tourniquet is used.

Before giving antibiotic prophylaxis, consider the timing and pharmacokinetics (for example, the serum half-life) and necessary infusion time of the antibiotic. Give a repeat dose of antibiotic prophylaxis when the operation is longer than the half-life of the antibiotic given.

Give antibiotic treatment (in addition to prophylaxis) to patients having surgery on a dirty or infected wound.

Inform patients before the operation, whenever possible, if they will need antibiotic prophylaxis, and afterwards if they have been given antibiotics during their operation.

Intraoperative Phase

Hand Decontamination

The operating team should wash their hands prior to the first operation on the list using an aqueous antiseptic surgical solution, with a single-use brush or pick for the nails, and ensure that hands and nails are visibly clean.

Before subsequent operations, hands should be washed using either an alcoholic hand rub or an antiseptic surgical solution. If hands are soiled then

they should be washed again with an antiseptic surgical solution.

Incise Drapes

Do not use non-iodophor-impregnated incise drapes routinely for surgery as they may increase the risk of surgical site infection.

If an incise drape is required, use an iodophor-impregnated drape unless the patient has an iodine allergy.

Use of Sterile Gowns

The operating team should wear sterile gowns in the operating theatre during the operation.

Gloves

Consider wearing two pairs of sterile gloves when there is a high risk of glove perforation and the consequences of contamination may be serious.

Antiseptic Skin Preparation

Prepare the skin at the surgical site immediately before incision using an antiseptic (aqueous or alcohol-based) preparation: povidone-iodine or chlorhexidine are most suitable.

If diathermy is to be used, ensure that antiseptic skin preparations are dried by evaporation and pooling of alcohol-based preparations is avoided.

Diathermy

Do not use diathermy for surgical incision to reduce the risk of surgical site infection.

Maintaining Patient Homeostasis

Maintain patient temperature in line with 'Inadvertent perioperative hypothermia' (NICE clinical guideline 65).

Maintain optimal oxygenation during surgery. In particular, give patients sufficient oxygen during major surgery and in the recovery period to ensure that a haemoglobin saturation of more than 95% is maintained.

Maintain adequate perfusion during surgery.

Do not give insulin routinely to patients who do not have diabetes to optimise blood glucose postoperatively as a means of reducing the risk of surgical site infection.

Wound Irrigation and Intracavity Lavage

Do not use wound irrigation to reduce the risk of surgical site infection.

Do not use intracavity lavage to reduce the risk of surgical site infection.

Antiseptic and Antimicrobial Agents before Wound Closure

Do not use intraoperative skin re-disinfection or topical cefotaxime in abdominal surgery to reduce the risk of surgical site infection.

Wound Dressings

Cover surgical incisions with an appropriate interactive dressing at the end of the operation.

Postoperative Phase

Changing Dressings

Use an aseptic non-touch technique for changing or removing surgical wound dressings.

Postoperative Cleansing

Use sterile saline for wound cleansing up to 48 hours after surgery.

Advise patients that they may shower safely 48 hours after surgery.

Use tap water for wound cleansing after 48 hours if the surgical wound has separated or has been surgically opened to drain pus.

Topical Antimicrobial Agents for Wound Healing by Primary Intention

Do not use topical antimicrobial agents for surgical wounds that are healing by primary intention to reduce the risk of surgical site infection.

Dressings for Wound Healing by Secondary Intention

Do not use Eusol and gauze, or moist cotton gauze or mercuric antiseptic solutions to manage surgical wounds that are healing by secondary intention.

Use an appropriate interactive dressing to manage surgical wounds that are healing by secondary intention.

Refer to a tissue viability nurse (or another healthcare professional with tissue viability expertise) for advice on appropriate dressings for the management of surgical wounds that are healing by secondary intention.

Antibiotic Treatment of Surgical Site Infection and Treatment Failure

When surgical site infection is suspected (i.e., cellulitis), either *de novo* or because of treatment failure, give the patient an antibiotic that covers the likely causative organisms. Consider local resistance patterns and the results of microbiological tests in choosing an antibiotic.

Debridement

Do not use Eusol and gauze, or dextranomer or enzymatic treatments for debridement in the management of surgical site infection.

Specialist Wound Care Services

Although there is no direct evidence to support the provision of specialist wound care services for managing difficult to heal surgical wounds, a structured approach to care (including preoperative assessments to identify individuals with potential wound healing problems) is required in order to improve overall management of surgical wounds. To support this, enhanced education of healthcare workers, patients and carers, and sharing of clinical expertise will be required.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Surgical site infection (SSI)

Note: SSIs are infections that occur in the wound created by an invasive surgical procedure. This guideline does not address:

- Prophylaxis and management of antibiotic-resistant bacteria
- Management of the operating theatre environment and environmental factors
- Anaesthetic factors relating to surgical site infection (SSI)

Guideline Category

Assessment of Therapeutic Effectiveness

Counseling

Evaluation

Management

Prevention

Risk Assessment

Screening

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Nursing

Preventive Medicine

Surgery

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Hospitals

Nurses

Patients

Pharmacists

Physician Assistants

Physicians

Public Health Departments

Utilization Management

Guideline Objective(s)

To assist clinicians and patients in making decisions about appropriate treatment for specific conditions
To provide guidance on the patient's journey throughout the preoperative, intraoperative and postoperative phases of surgery
To complement other existing and proposed works of relevance, including related National Institute for Health and Clinical Excellence (NICE) guidance:

This guideline updates NICE Technology Appraisal 24: 'Guidance on the use of debriding agents and specialist wound care clinics for difficult to heal surgical wounds'.
The effects of maintenance of normothermia are addressed in the 'Inadvertent perioperative hypothermia' guideline (NICE clinical guideline 65), available from www.nice.org.uk/Guidance/CG65).

Target Population

Patients undergoing surgery in the United Kingdom

Interventions and Practices Considered

Prevention/Treatment/Management

- A structured approach to care with clear, consistent advice for patients and carers
- Preoperative:
  - Showering
  - Specific patient and staff theatre wear
  - Removal of hand jewelry, artificial nails, and nail polish
  - Minimize staff movement
  - Antibiotic prophylaxis
- Intraoperative phase
  - Hand decontamination, use of sterile gowns and gloves
  - Iodophor-impregnated incise drapes
  - Antiseptic skin preparations (povidone-iodine, chlorhexidine)
  - Maintaining patient homeostasis: warming, optimal oxygenation, and adequate perfusion
  - Covering of incisions with appropriate interactive dressing
- Postoperative phase
  - Dressing changes (aseptic, non-touch technique)
  - Postoperative wound cleansing
  - Appropriate interactive dressings for wounds
  - Antibiotic treatment of surgical site infections (SSIs)
  - Referral for specialist wound care services
  - Enhanced education of healthcare workers, patients, and carers

Major Outcomes Considered

- Incidence of surgical site infections (SSIs)
- Wound healing time
- Morbidity and mortality
- Cost effectiveness: cost per infection avoided and cost per life year saved

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Literature Search Strategy

Initial scoping searches were executed to identify relevant guidelines (local, national and international) produced by other development groups. The reference lists in these guidelines were checked against subsequent searches to identify missing evidence.

Relevant published evidence to inform the guideline development process and answer the clinical questions was identified by systematic search strategies. The clinical questions are presented in Appendix B of the original guideline document. Additionally, stakeholder organisations were invited to submit evidence for consideration by the Guideline Development Group (GDG) provided it was relevant to the topics included in the scope and of equivalent or better quality than evidence identified by the search strategies.

Systematic searches to answer the clinical questions formulated and agreed by the GDG were executed using the following databases via the 'Ovid' platform: Medline (1950 onwards), Embase (1980 onwards) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL; 1982 onwards). The most recent search conducted for the three Cochrane databases (Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and the Database of Abstracts of Reviews of Effects) was undertaken in quarter 1, 2008. Searches to identify economic studies were undertaken using the above databases and the NHS Economic Evaluation Database (NHS EED).

Search strategies combined relevant controlled vocabulary and natural language in an effort to balance sensitivity and specificity. Unless advised by the GDG, searches were not date specific. Language restrictions were applied to searches, and publications in languages other than English were not appraised. Both generic and specially developed methodological search filters were used appropriately.

There was no systematic attempt to search grey literature (conferences, abstracts, theses and unpublished trials). Hand searching of journals not indexed on the databases was not undertaken.

Searches were conducted during a 7 month period between September 2007 and April 2008. Evidence published after this date has not been included in the guideline. September 2007 should thus be considered the starting point for searching for new evidence for future updates to this guideline.

Currency Review

The National Collaborating Centre for Women's and Children's Health undertook a review of this guideline in 2011 and determined that the information is current. See the NICE Web site for the review decision.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence for Intervention Studies

Level of Evidence	Type of Evidence
1++	High-quality meta-analyses, systematic reviews of randomised controlled trials (RCTs) or RCTs with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews of RCTs or RCTs with a low risk of bias
1−	Meta-analyses, systematic reviews of RCTs or RCTs with a high risk of bias*
2++	High-quality systematic reviews of case–control or cohort studies; high-quality case–control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal
2+	Well-conducted case–control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal
2−	Case–control or cohort studies with a high risk of confounding bias or chance and a significant risk that the relationship is not causal*
3	Non-analytic studies (for example, case reports and case series)
4	Expert opinion, formal consensus

*Studies with a level of evidence '–' should not be used as a basis for making a recommendation.

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Synthesis of Clinical Effectiveness Evidence

Evidence relating to clinical effectiveness was reviewed using established guides and classified using the established hierarchical system (see the "Rating Scheme for the Strength of the Evidence" field). This system reflects the susceptibility to bias that is inherent in particular study designs.

The type of clinical question dictates the highest level of evidence that may be sought. In assessing the quality of the evidence, each study was assigned a quality rating coded as '++', '+' or '−'. For issues of therapy or treatment, the highest possible evidence level (EL) is a well-conducted systematic review or meta-analysis of randomised controlled trials (RCTs; EL = 1++) or an individual RCT (EL = 1+). Studies of poor quality were rated as '−'. Usually, studies rated as '−' should not be used as a basis for making a recommendation, but they can be used to inform recommendations. For issues of prognosis, the highest possible level of evidence is a cohort study (EL = 2). A level of evidence was assigned to each study appraised during the development of the guideline.

For each clinical question, the highest available level of evidence was selected. Where appropriate, for example if a systematic review, meta-analysis or RCT existed in relation to a question, studies of a weaker design were not considered. Where systematic reviews, meta-analyses and RCTs did not exist, other appropriate experimental or observational studies were sought.

Clinical evidence for individual studies was extracted into evidence tables and a brief description of each study was included in the guideline text. The body of evidence identified for each clinical question was synthesised qualitatively in clinical evidence statements that accurately reflected the evidence. Quantitative synthesis (meta-analysis) was performed for this guideline where sufficient numbers of similar studies were identified to merit such analysis.

Methods Used to Formulate the Recommendations

Expert Consensus

Informal Consensus

Description of Methods Used to Formulate the Recommendations

This guideline was commissioned by the National Institute for Health and Clinical Excellence (NICE) and developed in accordance with the guideline development process outlined in the NICE *Technical Manual*. This has included giving registered stakeholder organisations the opportunity to comment on the scope of the guideline at the initial stage of development and on the evidence and recommendations at the concluding stage.

The guideline was developed by a multi-professional and lay working group (the Guideline Development Group or GDG) convened by the National Collaborating Centre for Women's and Children's Health (NCC-WCH). Membership included:

- Two surgeons
- A tissue viability nurse
- Two microbiologists
- A theatre nurse
- A surveillance coordinator
- An infection control specialist
- Two patient/carer representatives

Forming and Grading Recommendations

For each clinical question, recommendations for clinical care were derived using, and linked explicitly to, the evidence that supported them. In the first instance, informal consensus methods were used by the GDG to agree clinical and cost-effectiveness evidence statements. Statements summarising the GDG's interpretation of the evidence and any extrapolation from the evidence used to form recommendations were also prepared. In areas where no substantial clinical research evidence was identified, the GDG considered other evidence-based guidelines and consensus statements or used their collective experience to identify good practice. The health economics justification in areas of the guideline where the use of National Health Service (NHS) resources (interventions) was considered was based on GDG consensus in relation to the likely cost-effectiveness implications of the recommendations. The GDG also identified areas where evidence to answer their clinical questions was lacking and used this information to formulate recommendations for future research.

Towards the end of the guideline development process, formal consensus methods were used to consider all the clinical care recommendations and research recommendations that had been drafted previously. The GDG identified ten key priorities for implementation (key recommendations), which were those recommendations expected to have the biggest impact on care and outcomes for adults and children undergoing surgical incisions through the skin.

The GDG also identified five key priorities for research, which were the most important research recommendations.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

The aims of the economic input to the guideline were to inform the Guideline Development Group (GDG) of potential economic issues relating to the prevention and treatment of surgical site infection (SSI) and its complications, and to ensure that recommendations represented cost-effective use of healthcare resources.

The GDG prioritised a number of clinical questions where it was thought that economic considerations would be particularly important in formulating recommendations. A systematic search for published economic evidence was undertaken for these questions. For economic evaluations, no standard system of grading the quality of evidence exists and included papers were assessed using a quality assessment checklist based on good practice in decision-analytic modelling. Reviews of the very limited relevant published economic literature are presented alongside the clinical reviews or as part of appendices detailing original economic analyses.

Health economic considerations were aided by original economic analysis undertaken as part of the development of the guideline where robust clinical effectiveness data were available and UK cost data could be obtained. For this guideline, the areas prioritised for economic analysis were:

Hair removal (Section 5.2 in the original guideline document)
Nasal decontamination (Section 5.6 in the original guideline document)
Wound dressings (Section 6.12 in the original guideline document).

The results of each economic analysis are summarised briefly in the guideline text with full cost-effectiveness models presented in Appendices D–G in the original guideline document.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The guideline was validated through two consultations.

The first draft of the guideline (The full guideline, National Institute for Clinical Excellence [NICE] guideline and Quick Reference Guide) were consulted with Stakeholders and comments were considered by the Guideline Development Group (GDG)
The final consultation draft of the Full guideline, the NICE guideline and the Information for the Public were submitted to stakeholders for

final comments.

The final draft was submitted to the Guideline Review Panel for review prior to publication.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated for each recommendation.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate prevention and treatment of surgical site infections (SSI)

Potential Harms

The use of antibiotics for prophylaxis carries a risk of adverse drug reactions (including *Clostridium difficile*-associated diarrhea) and increased prevalence of antibiotic-resistant bacteria.

Qualifying Statements

Qualifying Statements

Implementation of the Guideline

Description of Implementation Strategy

The Healthcare Commission assesses how well National Health Service (NHS) organisations meet core and developmental standards set by the Department of Health in 'Standards for better health' (available from www.dh.gov.uk). Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that NHS organisations should take into account national agreed guidance when planning and delivering care.

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CG74 ; see also the "Availability of Companion Documents" field).

Slides highlighting key messages for local discussion.
A costing statement to help estimate the costs and savings involved in implementing this guideline.
Audit support for monitoring local practice.

Key Priorities for Implementation (Key Recommendations)

Information for Patients and Carers

Offer patients and carers clear, consistent information and advice throughout all stages of their care. This should include the risks of surgical site infections, what is being done to reduce them and how they are managed.

Preoperative Phase

Do not use hair removal routinely to reduce the risk of surgical site infection.
If hair has to be removed, use electric clippers with a single-use head on the day of surgery. Do not use razors for hair removal, because they increase the risk of surgical site infection.
Give antibiotic prophylaxis to patients before:
- Clean surgery involving the placement of a prosthesis or implant
- Clean-contaminated surgery
- Contaminated surgery

Do not use antibiotic prophylaxis routinely for clean non-prosthetic uncomplicated surgery.
Use the local antibiotic formulary and always consider potential adverse effects when choosing specific antibiotics for prophylaxis.
Consider giving a single dose of antibiotic prophylaxis intravenously on starting anaesthesia. However, give prophylaxis earlier for operations in which a tourniquet is used.

Intraoperative Phase

Prepare the skin at the surgical site immediately before incision using an antiseptic (aqueous or alcohol-based) preparation: povidone-iodine or chlorhexidine are most suitable.
Cover surgical incisions with an appropriate interactive dressing at the end of the operation.

Postoperative Phase

Dressings for Wound Healing by Secondary Intention

Refer to a tissue viability nurse (or another healthcare professional with tissue viability expertise) for advice on appropriate dressings for the management of surgical wounds that are healing by secondary intention.

Implementation Tools

Audit Criteria/Indicators

Patient Resources

Quick Reference Guides/Physician Guides

Resources

Slide Presentation

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

National Collaborating Centre for Women's and Children's Health. Surgical site infection: prevention and treatment of surgical site infection. London (UK): National Institute for Health and Clinical Excellence (NICE); 2008 Oct. 142 p. (Clinical guideline; no. 74). [256 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2008 Oct (reaffirmed 2011)

Guideline Developer(s)

National Collaborating Centre for Women's and Children's Health - National Government Agency [Non-U.S.]

Source(s) of Funding

National Institute for Health and Clinical Excellence (NICE)

Guideline Committee

Guideline Development Group

Composition of Group That Authored the Guideline

Group Members: Mark Collier, Lead Nurse/Consultant – Tissue Viability; David Evans, Patient/carer member (Safety Engineer and Occupational Hygienist); Mark Farrington, Consultant Medical Microbiologist; Elizabeth Gibbs, Patient/carer member (Teenage Pregnancy Specialist Midwife); Kate Gould, Consultant Microbiologist (Clinical Advisor to the GDG); Helen Jenkinson, Hygiene Code Implementation Manager; Kathryn Kitson, Team Leader for Orthopaedic and Trauma Theatres (stood down in December 2007 owing to work commitments); David Leaper, GDG Chair, Visiting Professor, Department of Wound Healing; Matt Thompson, Professor of Vascular Surgery; Jennie Wilson, Infection Control Nurse/Programme Leader, Surgical Site Infection Surveillance Service

National Collaborating Centre for Women's and Children's Health (NCC-WCH) Staff: Shona Burman-Roy, Systematic Reviewer; Katherine Cullen, Health Economist; Eva Gautam-Aitken, Project Manager; Paul Jacklin, Senior Health Economist; Ana Palanca, Research Assistant;

Edmund Peston, Document Supply Coordinator; Roxana Rehman, Work Programme Coordinator; Andrew Welsh, Freelance copy-editor and typesetter; Martin Whittle, Clinical Co-Director; Danielle Worster, Information Scientist

External Advisers: John Black, Consultant Surgeon; Alice Jones, Senior Sister in General and Emergency Surgery; Grainne Nicholson, Consultant Anaesthetist

Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

The National Collaborating Centre for Women's and Children's Health reaffirmed the currency of this guideline in 2011.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) format from the National Institute for Health and Clinical Excellence (NICE) Web site.

Availability of Companion Documents

The following are available:

- Surgical site infection. Prevention and treatment of surgical site infection. NICE guideline. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 28 p. (Clinical guideline; no. 74). Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site.
- Surgical site infection. Prevention and treatment of surgical site infection. Quick reference guide. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 11 p. (Clinical guideline; no. 74). Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection: prevention and treatment of surgical site infection. Costing statement. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 9 p. (Clinical guideline; no. 74). Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection: prevention and treatment of surgical site infection. Audit support. London (UK): National Institute for Health and Clinical Excellence; 2008. 7 p. (Clinical guideline; no. 74). Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection. Implementing NICE guidance. Slide set. London (UK): National Institute for Health and Clinical Excellence; 2008. 14 p. (Clinical guideline; no. 74). Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection: prevention and treatment of surgical site infection. Search strategies. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 189 p. Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection: prevention and treatment of surgical site infection. Excluded studies. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 30 p. Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- Surgical site infection: prevention and treatment of surgical site infection. Evidence tables. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 128 p. Electronic copies: Available in Portable Document Format (PDF) from the NICE Web site.
- The guidelines manual 2007. London (UK): National Institute for Health and Clinical Excellence (NICE); 2007 April. Electronic copies: Available in Portable Document Format (PDF) from the NICE Archive Web site.

Also, the appendices of the original guideline document provide cost analyses and general principles for hand hygiene.

Patient Resources

The following is available:

- Preventing and treating surgical site infections. Understanding NICE guidance. Information for people who use NHS services. London (UK): National Institute for Health and Clinical Excellence; 2008 Oct. 7 p. (Clinical guideline; no. 74). Electronic copies: Available in in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This summary was completed by ECRI Institute on April 9, 2009. The currency of the guideline was reaffirmed by the developer in 2011 and this summary was updated by ECRI Institute on October 30, 2013. This summary was updated by ECRI Institute on March 6, 2014 following the U.S. Food and Drug Administration advisory on Over-the-Counter Topical Antiseptic Products.

The National Institute for Health and Clinical Excellence (NICE) has granted the National Guideline Clearinghouse (NGC) permission to include summaries of their clinical guidelines with the intention of disseminating and facilitating the implementation of that guidance. NICE has not yet verified this content to confirm that it accurately reflects that original NICE guidance and therefore no guarantees are given by NICE in this regard. All NICE clinical guidelines are prepared in relation to the National Health Service in England and Wales. NICE has not been involved in the development or adaptation of NICE guidance for use in any other country. The full versions of all NICE guidance can be found at www.nice.org.uk.

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